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IN THE

Supreme Court of the United States

OCTOBER TERM, 1995

LOTUS DEVELOPMENT CORPORATION,

Petitioner,

V

BORLAND INTERNATIONAL, INC.,

Respondent.

On Writ of Certiorari to the United States Court of Appeals for the First Circuit

BRIEF OF AMICUS CURIAE
LEAGUE FOR PROGRAMMING FREEDOM
IN SUPPORT OF RESPONDENT

Interest of Amicus Curiae

The League for Programming Freedom is a private nonprofit membership organization whose members are computer scientists, lawyers, and others committed to encouraging the diffusion of knowledge and useful arts

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by opposing unwarranted extensions of intellectual property principles in the domain of computer technology. The League has been particularly concerned since its formation in 1988 with issues of software patents and computer interface copyrights. The present case presents issues of central concern to the League and its members. All parties have consented to the filing of this brief. Letters to that effect have been lodged with the Court.

Summary of Argument

This case, like Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417 (1984), concerns an attempt to expand the reach of the statutory monopoly conveyed through copyright beyond the limits set by Congressional intent. Here, as in Sony, profound social consequences for millions of individual Americans are at stake. Petitioners ask this Court to accept a theory of copyright, said to be implicit in a statute written before the problems here at issue had been recognized, that would alter, fundamentally and to the public detriment, the development of the century's most significant technology. The Court of Appeals correctly concluded that, far from implicitly accepting petitioner's view of the scope of copyright, Congress had in §102(b) of the 1976 Copyright Act, 17 U.S.C. §102(b), excluded programcontrol and user interfaces to computer programs from copyright coverage as a species of "methods of operation."

Amicus urges this Court to affirm the decision of the Court of Appeals. The court below correctly synthesized the words of §102(b), the distinction between idea and

expression in the theory of copyright, and the new technology involved. The interpretation of the 1976 Act given by the Court of Appeals harmonizes existing doctrine and unprecedented technology better than the competing principles advanced by petitioner.

Petitioners and some amici would have this Court believe that the Court of Appeals' references to "method of operation" are talismanic, over-literal, or insensitive to the nuances of distinguishing "expression" from "idea." None of this is so. "Expression" and "idea" are themselves imperfectly exclusive categories. As this Court has recognized since Baker v. Selden, 101 U.S. 99 (1879), expression may sometimes merge into idea. This intersection of the idea and expression is known to both the common law and the Copyright Act as "method of operation." The problem of method of operation as a fusion of idea and expression is sometimes seen outside the domain of computer software. Inside that domain. however, the issue is more complicated and far more significant than it usually is with other forms of activity covered by copyright. The Court of Appeals correctly understood the special functional role played by the menu command hierarchy in this record. On the basis of the District Court's detailed findings, the Court of Appeals reached the conclusion that best effectuates the broad Congressional intent lying behind §102(b). The alternative, which petitioner recommends without acknowledgment of the full consequences, leads to the conclusion that someone can copyright the use of any particular language as a means of communication with and between computers.

The Court of Appeals' approach also explains the distinction between the scope of copyright as previously

applied to computer programs, and the limitation implied by §102(b). The Court of Appeals denied copyright coverage to the language which petitioner's product, Lotus 1-2-3, understands, and in which users and other computer programs address it in order to acquire the results of its operation. It left intact the pre-existing degree of copyright coverage for the "source code," including non-literal copying of source code, or the form in which Lotus 1-2-3 is fixed in tangible media of expression. The Court of Appeals held only that the idea of a program which speaks the language of Lotus 1-2-3 is not covered by copyright, and that someone else may, without infringing petitioner's rights, create another computer program that speaks the same language. Despite all of the attempts by petitioner and others to make this conclusion appear stunning, confused or unprecedented, it is simple, and simply right.

Thus, contrary to the claims of petitioner and some amici, the Court of Appeals' approach imposes no change in copyright doctrine on any material deemed copyrightable before the opinions of the District Court below. This form of statutory construction, which leaves existing rights in place while refusing to infer broad statutory coverage over new technological and social developments, is an appropriate and restrained response to unprecedented problems unforeseen by the legislature. Congress never actually foresaw the technological issues that led to the need for statutory interpretation here. The approach taken by the Court of Appeals intelligently and sensitively applies the conceptions of the Act to a fundamentally altered technological context. Petitioner's proposed reading of the statute in its new context is not supported by an equivalently sophisticated statutory analysis, and leads to absurd and socially harmful results.

It was rightly rejected by the Court of Appeals. If Congress, upon informing itself and assessing the balance of social needs, wishes to achieve the results petitioner urges, it can do so. But this Court, in the quest for the legislature's elusive intent, need not accept petitioner's self-interested preference for the undeniably broad consequences of its position.

Argument

I. The Court of Appeals Correctly Applied §102(b) of the Copyright Act

Copyright law treats certain forms of expression as property and imposes legal penalties on practices which infringe, through copying or otherwise, the proprietary rights of the author or other owner. Congress has recognized that copyright coverage involves a tradeoff: it provides an incentive for some authors to produce work they might not otherwise undertake, but by withdrawing some forms of expression from free circulation, it may impair the production of other work that will also "promote the Progress of Science and useful Arts," U.S. Const., Art. I, sec. 8, cl. 8. That view is the source of the "most fundamental axiom of copyright law": that "[n]o author may copyright his ideas or the facts he narrates." Feist Publications, Inc. v. Rural Tel. Service Co., 499 U.S. 340, 345 (1991) (quoting Harper & Row, Publishers, Inc. v. Nation Enterprises, 471 U.S. 539, 556 (1985)). Congress expressed that idea in §102(b) of the Copyright Act, which expressly provides that "[i]n no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work." 17 U.S.C. §102(b). All parties agree that this formulation codifies the "idea-expression" distinction in the law of copyright. See Feist, 499 U.S., at 356; H.R. Rep. No. 94-1476, p. 57 (1976); S. Rep. No. 94-473, p. 54 (1975). The fundamental flaw in petitioner's argument is its failure to recognize that Lotus 1-2-3's menu hierarchy

and the Borland "key reader"—the two elements at issue in this case—lie at the intersection of these two ways of expressing the basic limits of copyright coverage: they are an amalgamation of idea and method of operation.

A. Critical Technical Distinctions Exist Between Computer Software and Other Literary Works

Petitioner downplays the significance of §102(b) by observing that every computer program is a "procedure, process, [or] system" whose source code specifies a "method of operation." Thus, it says, §102(b) cannot be read literally, or to exclude the menu hierarchy and macro language of Lotus 1-2-3 from copyright coverage, without eliminating all copyright coverage for computer programs. See, e.g., Pet. Br. at 28-29, 30-31, 43, 45.

But petitioner is simply wrong. As we show below, at the time Congress enacted the 1976 Act and the 1980 software amendments, it manifested a clear intention to cover specific types of computer-related expression. Congress did not, however, suspend the general structure of copyright law, which presumes that literary works can and do embody uncopyrightable ideas, systems, or methods of operation, as well as copyrightable expressions. Petitioner's conflation of copyrightable expression with non-copyrightable ideas and methods of operation ignores the unique nature of computer software among the class of literary works. Appropriate construction of the Copyright Act requires attention to this context. While some aspects of the Court of Appeals' opinion could be more precisely expressed, the decision below is far more sensitive to the distinctive

problems of computer programs as literary works than is petitioner's argument.

Terminology is important here. A program such as Lotus 1-2-3 is written in a computer language intended for use by specialized computer programmers. Tens of thousands of lines of instructions written in that primary language comprise the "source code" for Lotus 1-2-3. With appropriate processing by other computer programs, that "source code" is translated to "object code," a form of instruction suitable for execution by a particular type of computer. Under the control of the appropriate object code, a computer can behave in ways intended by the programmer who created the source code instructions.

All parties agree that Congress in adopting the 1980 Amendments to the Copyright Act intended to effectuate the recommendation of the National Commission on New Technological Uses of Copyrighted Works that computer programs be treated as literary works. See Pub. L. No. 96-517, §10(a), 94 Stat. 3015, 3028 (1980). But as the previous legislative history of the Copyright Act reveals, Congress intended §102(b) of the Act to apply strictly in the technologically distinctive context of computer programs:

Some concern has been expressed lest copyright in computer programs should extend protection to the methodology or process adopted by the programmer, rather than merely to the "writing" expressing his ideas. Section 102(b) is intended, among other things, to make clear that the

expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law. H.R. Rep. No. 94-1476, p. 57 (1976).

Applied to the comparatively simple technological context in which Congress legislated in 1976, the intention was clear: what the programmer writes, the source code, is covered by copyright; what the program does, the idea or method of operation of the program, is not.

But, as Congress fully expected, the technological context changed substantially after 1976 and 1980. Programs of a type only familiar in the world of larger "mainframe" computers reached the mass consumer market along with the personal computer in the early 1980s. See Pet. Br. at 11 (Lotus 1-2-3 first released in 1983). Computer programs of the type and sophistication of Lotus 1-2-3 are interactive: they behave in complex ways following directions submitted by human users or other computer programs. Computers animated by such interactive programs, unlike all the other tools conceived by humankind in its long history of tool-making, respond to language. Put in terms of the Copyright Act, an interactive language, shared between Lotus 1-2-3 and a person or computer program directing the interaction, is the method of operating Lotus 1-2-3. This language is not the language of the source code, in which Lotus 1-2-3 was expressed by its creator, but another language whose purpose is the operation of the program.

Lotus 1-2-3 is an inherently complex program, which manages sophisticated mathematical and textual objects

These and other technical matters are more fully described in the Brief Amicus Curiae of Computer Scientists in Support of Respondent, at 4-6.

called spreadsheets, draws charts and graphs, contains database storage and retrieval capacities, and so forth. The language in which a program such as Lotus 1-2-3 receives and executes directions from humans or other computer programs is not English, or like English. Usually two or three typewriter keystrokes (letters, numbers, or some punctuation) are an entire command, or a short series of such keystrokes initiates a multi-step process. For example, if a Lotus 1-2-3 user wants to direct her machine to save a worksheet, she might type the phrase "/WS" along with the name she wishes the saved worksheet to have. The command language of a program like Lotus 1-2-3 is quite large.² Like Esperanto, or any other invented language, the number of ideas that can be expressed in the Lotus 1-2-3 language is essentially unlimited, within the context of the spreadsheet program and the activities a user might desire it to perform.

The language of Lotus 1-2-3 is not spoken only by the program itself and its human users. Other programs, usually called "macros," can be written in Lotus 1-2-3 language that will allow Lotus 1-2-3 to perform operations under the macro's control. Just as a human user can type certain keys to form words in Lotus 1-2-3 language (in which case the program presents on the screen "menus" showing possible relevant choices as each word is formed) a macro program can be directed to control Lotus 1-2-3's operation, in which case—although the same words are presented—the program behaves

slightly differently. It need not show the menus while reading the macro, which is a document written in the Lotus 1-2-3 command language by the user herself, or by some other person.

The "menu hierarchy" included in Lotus 1-2-3 is essentially therefore akin to the words in a dictionary. It enables users who cannot remember the "vocabulary" (that is, the strokes on the keyboard) necessary to instruct Lotus 1-2-3 in particular circumstances to see relevant choices displayed on the screen. Respondent devised its Quattro Pro program to speak the same language as Lotus 1-2-3. Its menu hierarchy, if the user chose to enable the "emulation," reminded the user of relevant valid words in Lotus 1-2-3 language. This reminding function is a "user interface." Respondent's Quattro Pro key reader, see Lotus Development Corp. v. Borland International, Inc., 831 F. Supp. 223, 226-27 (1993)(description of key reader), is another dictionary—one that "translates" instructions formed in Lotus 1-2-3 language into language that Quattro Pro recognizes, without display of menus. Its purpose was to allow "macros," that is, other computer programs that speak Lotus 1-2-3 language, to communicate with Quattro Pro. The central claim of this lawsuit, which the Court of Appeals properly rejected, is that the language recognized by Lotus 1-2-3 is copyrightable expression, rather than an uncopyrightable idea or method of operation under §102(b).

^{2.} Petitioner refers in its brief to the 469 words contained in the menu hierarchy. Pet. Br. 5. This is not an exact enumeration of the number of commands in the language of Lotus 1-2-3, see Pet. Br. 8 n.12, but the magnitude is roughly comparable.

B. User Interfaces are Language Systems, or Methods of Operation, Excluded from Copyright by Section 102(b)

No one has ever copyrighted an entire language. Indeed, such an attempt would be absurd. Nor, by copyrighting a dictionary, can the dictionary's author withdraw the words contained within the dictionary from free discourse. But that, ultimately, is what petitioner seeks to do. Because the technological context is somewhat obscure, petitioner adduces arguments that would never be accepted in the context of other literary works, while at the same time contending that computer programs are literary works no different than all others for the purpose of §102(b).

The difference between computer programs and non-interactive literary works is significant, but not because it changes the nature of copyright law's application. Non-interactive literary works do not often create new languages; interactive ones, such as Lotus 1-2-3, often do. But the nature of petitioner's claim is made clear, as well as the overwhelming obstacles it faces, when another kind of language-inventing literary work is considered.

In 1939, for example, James Joyce published the renowned (if introductive read) modernist novel called Finnegans Wake. Much of this novel was written in language of Joyce's own invention which, by a process which was in some respects the subject of the novel, English-speaking readers could partially understand. A sentence taken at random from the novel says:

Cycloptically through the windowdisks and with eddying awes the round eyes of the rundreisers, back to back, buck to bucker, on their airish chaunting car, beheld with intouristing anterestedness the clad pursue the bare, the bare the green, the green the frore, the frore the cladagain, as their convoy wheeled encirculingly abound the gigantig's lifetree, our firleaved loverlucky blomsterbohm, phoenix in our woodlessness, haughty, cacuminal, erubescent (repetition!) whose roots they be asches with lustres of peins. Finnegans Wake 55 (1976 ed.) (orig. publ. 1939).

Joyce's novel contains hundreds, indeed thousands, of unfamiliar words conjoined to make a language in which others could express their own ideas. There is no doubt that, when fixed in any tangible medium of expression, Finnegans Wake can be covered by copyright. But petitioner's argument demands that any literary work written using large numbers of new words copied from Finnegans Wake infringes the copyright. This argument confuses James Joyce's expression in his invented language, as fixed in the literary work called Finnegans Wake, and his idea: the invented Wake-language itself and the words comprising it. This is the very confusion that §102(b) of the Copyright Act is designed to prevent.

Respondent's Quattro Pro is an interactive literary work, a computer program, that understands the language of petitioner's Lotus 1-2-3. When expressions in this language are presented to it, whether a user is typing on a keyboard or a macro program is executing, Quattro Pro behaves responsively. A non-interactive literary work can also have this property with respect to the language of another. An author might prepare a dictionary of the

language of Finnegans Wake, for example, and for each unfamiliar word in that work give a definition based on sound, context, or other guides to meaning. Such a dictionary would "understand" the language of Finnegans Wake, and each word defined in it would have been copied from the novel. Petitioner must be prepared to argue that such a dictionary infringes the original copyright, and such an argument falls foul of §102(b).

This is true a fortiori of the literary works in question here. Petitioner claims that the Court of Appeals' reliance on the words "method of operation" is fallacious, and broad enough to deprive all computer programs of copyright protection. Pet. Br. 42-43. But the Court of Appeals saw correctly that the present case is governed by the clear language of the statute. Petitioner's claim to copyright coverage falls foul of §102(b) because it is seeking to bring within its copyright a system of ideas—the interaction language of Lotus 1-2-3. That language, as the Court of Appeals understood, is Lotus 1-2-3's "method of operation," as distinct from the language of Lotus 1-2-3's source code, which is the copyrightable expression of Lotus 1-2-3's authors. The phrase "method of operation," of the ones Congress used in §102(b), most closely describes the nature of the idea, as opposed to expression, petitioner seeks to cover. But, as petitioner agrees, the central question is not whether Lotus 1-2-3's command language is a "system," a "method of operation," or a "concept." If, as would be clear in the context of a non-interactive literary work, invented language is an "idea," it cannot be copyrighted.

In this context, it is easier to comprehend the relevance of the case of Baker v. Selden, 101 U.S. 99 (1879), to the present dispute. Baker concerned the

attempt to extend copyright to cover allegedly infringing grid-ruled forms resembling those published by the plaintiff, of a type devised to facilitate practicing a particular system of bookkeeping. The decision of this Court formalized the idea-expression distinction, holding that Selden could not cover by copyright the idea of his system of municipal bookkeeping. *Id.*, at 101.

This Court's decision in Baker v. Selden also gave rise to the so-called "merger doctrine," holding that expressive content is not covered by copyright when it is a "necessary incident" to an idea, which cannot be conveyed to another without some illustrative incident expression. Id., at 103. The Court of Appeals correctly regarded Borland's use of a menu-like dictionary of Lotus 1-2-3's interaction language, intended to assist the user in forming the words of that language, as a necessary incident to that idea. This view is consistent with Baker. in which the Court found Selden's column headings on his ruled forms, such as "Balance Forward," "Adjusted," and "Additional Disbursements" to be excluded from coverage. These column headings, in the non-interactive context of Selden's forms, are like the items "Copy," "Recalc," and "Combine" found in the menu hierarchy of Lotus 1-2-3 and Quattro Pro.

This is so despite the fact that inventing a language requires originality, and is expressive. Petitioner points out that Lotus 1-2-3's creator, Mitchell Kapor, worked closely with others to invent a language that would "intelligently" facilitate communication with Lotus 1-2-3. Pet. Br. 9. Perhaps James Joyce worked alone in devising language of Finnegans Wake; in both cases the expressive originality involved, however substantial, is not covered by copyright. As this Court said in Feist

Publications, Inc. v. Rural Tel. Service Co., 499 U.S. 340 (1991), about the closely-related problem of factual compilation:

It may seem unfair that much of the fruit of the [creator's] labor may be used by others without compensation. ... [T]his is not "some unforeseen byproduct of a statutory scheme." It is, rather, "the essence of copyright," and a constitutional requirement. The primary objective of copyright is not to reward the labor of authors, but "[t]o promote the Progress of Science and useful Arts." ... To this end, copyright assures authors the right to their original expression, but encourages others to build freely upon the ideas and information conveyed by a work. Id., at 349-50 (citations omitted).

The approach taken by the Court of Appeals below coincides with the teaching of Feist. Its construction of §102(b) in the factual context of this case accords, as petitioner's does not, with the fundamental axioms and purposes of copyright.

II. Petitioner's Interpretation Leads to Absurd and Undestrable Results

Petitioner urges this Court to reject the Court of Appeals' approach, contending that if the Congressional intent to protect computer programs as literary works is to be effectuated, §102(b) cannot exclude from copyright coverage the command language of Lotus 1-2-3. As we have explained above, this contention is wrong. It depends on a confusion between the source code of Lotus

1-2-3, which is covered by copyright as an expression in a tangible medium of the method of operating a computer, and Lotus 1-2-3's language of interaction with users and other computer programs—its "user interface"—which is an invented language within the literary work and is thus an idea excluded from coverage by §102(b).

On the basis of this confusion, petitioner makes a claim never before made in the history of our copyright law. Petitioner asserts that any interactive literary work that understands the language of Lotus 1-2-3, behaving responsively and similarly when commands in that language are addressed to it, infringes the copyright coverage accorded Lotus 1-2-3's source code. This, petitioner asserts, is so despite the absence of any copying from the program as fixed in the tangible medium of expression required by the Act.

Petitioner's position is not only unprecedented, it leads to impossible consequences. Suppose Lotus 1-2-3's designers had elected, instead of devising their own invented language of interaction, to use English. In a technological context likely to be commonplace in the near future, in which personal computers can be directed by voice recognition equipment, such a decision would not be implausible. If Lotus 1-2-3 responded intelligently to every single English sentence that could be usefully spoken to a spreadsheet program (such as "Save this spreadsheet under the name Mary," "Move column 1 to column 5, please," and "Put zero in every box on row 12"), would any other spreadsheet program that recognized English sentences infringe? Would all other spreadsheet programs be compelled to offer an interface to users and other programs based around French, Urdu,

or Nahuatl, or else purchase a license to recognize English?³

This absurdity is the root of the problem with petitioner's contentions. The policy of the copyright system, as all concede, is to encourage the diffusion of useful knowledge. Petitioner's argument requires the conclusion that §102(b) effects that encouragement by requiring each computer program to speak a language different from all others, making it more difficult for both users and other computer programs to communicate effectively. "Compatibility," which is one of the central concerns of interactive software developers, is sacrificed to the desire of authors to recoup material rewards from the invention of new languages. This position conforms neither to the words of §102(b) nor to the Constitution's clear statement of the policy that enables the legislation. As this Court said in Feist, "the primary objective of copyright" is the encouragement to build upon information and ideas. 499 U.S., at 349-50. Petitioner's argument places much emphasis upon the incentive to authors provided by material rewards. Pet. Br. at 49. As we show below, concern that the Court of Appeals interfered with this legitimate interest is unfounded. What petitioner does not acknowledge, however, is that this interest is not the central policy of copyright. Extending copyright to cover all subsequent uses of invented languages contained in a literary work will profusely reward some authors. But only at the expense of violating the fundamental axiom—of both our copyright system and our entire constitutional order—that ideas are free.

III. The Court of Appeals Properly Refused to Expand the Statutory Monopoly Without A Clear Statement of Congressional Intent to Alter the "Fundamental Axiom" of Copyright

As in Sony Corp. v. Universal City Studios, Inc., 464 U.S. 417 (1984), this Court is asked to expand significantly the scope of the statutory copyright monopoly in a situation Congress did not fully foresee when the legislation was written. In Sony, the Court rejected an "unprecedented" attempt to seek relief against alleged infringement from the manufacturers of articles of commerce, themselves not covered by copyright, that could be used by consumers to make copies of copyrightable material. Id., at 421. As in this case, the technological environment presented challenges unconsidered by the legislature. As this Court noted. "[i]n a case like this, in which Congress has not plainly marked our course, we must be circumspect in construing the scope of rights created by a legislative enactment which never contemplated such a calculus of interests." Id., at 431.

The Court of Appeals was fully mindful of that responsibility here. Contrary to the contention of petitioner and some amici, the Court of Appeals' holding does nothing to contract the scope of copyright coverage

^{3.} Petitioner might object that English, as opposed to the command language of Lotus 1-2-3, has been long in the public domain. No doubt this would be another valid reason for refusing to permit expansion of copyright to cover the use of English as a command language, but putting this point to one side, the example of existing natural languages helps to illustrate the way in which petitioner misunderstands the idea-expression distinction embodied in §102(b).

that Congress plainly intended in 1976 and 1980, when it accorded coverage to the expression of a computer program, its source code, and excluded its method of operation, or idea. Nor did the Court of Appeals fail to heed the Congressional reaffirmation, contained in the 1980 Software Amendments, that computer programs are literary works, to be so treated for the purposes of ascertaining copyrightability vel non under §102(b).

Expanding copyright coverage to include invented languages contained within a literary work is an enormous step, at odds with traditional copyright conceptions and the wording of §102(b). In the particular context of computer software, where the technological consequences of the decision could not have been before the minds of the legislators at the relevant time, such a decision is properly left to the Congress. As we have showed above, the method of operating an interactive computer program is to direct it, in its respective command language, to perform some task. If Congress wishes to alter §102(b), or undertake to cover computer software differently from other literary works, it can of course do so. As this Court said in Sony, "Congress has the constitutional authority and the institutional ability to accommodate fully the varied permutations of competing interests that are inevitably implicated by such new technology." 464 U.S., at 431. "Bluntly put," petitioner says, "Congress did not provide courts with a blank slate to write the rules of protection for computer software." Pet Br. at 49. Just so. For that reason, the Court of Appeals prudently declined petitioner's invitation to refashion the idea-expression distinction in the computer software context.

Conclusion

For the foregoing reasons, amicus urges that the decision of the Court of Appeals be affirmed.

Respectfully submitted,

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